

Maine.—Kent's Hill, 12th; Cornish, 25th.
Massachusetts.—Amherst, 7th; Westborough, 13th.
Nebraska.—Valentine and Fort Robinson, 1st; Hay Spring, 2d, 5th.
New Jersey.—Beverly, 18th, 25th.
New York.—Setauket, 13th, 30th.
North Carolina.—Lenoir, 9th; Reidsville, 30th.
Ohio.—College Hill and Jacksonborough, 9th; Elyria, 6th.
Oregon.—Astoria, 8th, 20th; Albany, 17th.
Pennsylvania.—Wellsborough, 4th, 29th; Dyberry, 17th, 25th; Wilkesbarre, 18th; Blooming Grove, 25th.
Tennessee.—Nashville, 6th.
Utah.—Salt Lake City, 9th.
Virginia.—Chincoteague, 6th.
Washington Territory.—Walla Walla, 8th, 19th; Pysht, 17th; Neah Bay, 17th, 20th; Tatoosh Island and Bainbridge Island, 20th.
Wyoming.—Fort Laramie, 1st.
Wisconsin.—Embarra, 17th, 28th.

SLEET.

Sleet occurred in the various states and territories, as follows:
Connecticut.—Bethel, 10th.
Dakota.—Fort Meade, 4th; Fort Sully, 29th.
Idaho.—Boisé City, 9th, 20th.
Indiana.—Vevay, 9th.
Iowa.—Independence, 18th; Des Moines, 29th.
Kansas.—El Dorado, Emporia, and Globe, 11th.
Maine.—Cornish, 17th; Eastport, 17th, 18th.
Maryland.—Emmitsburg, 6th, 9th.
Massachusetts.—Deerfield, 7th; Worcester, 17th, 18th.
Michigan.—Kalamazoo, 10th.
Nebraska.—Tecumseh, 16th.
New Jersey.—Dover, 25th.
New York.—Oswego, 4th, 6th, 15th, 18th; Albany, 17th, 25th, 30th; West Point, 12th.
North Carolina.—Flat Rock, 9th.
Ohio.—Wauseon, 9th, 29th; Yellow Springs, 9th.
Oregon.—Linkville and Roseburg, 20th; East Portland, 22d.
Pennsylvania.—Pittsburg, 15th; Zionsville, 18th, 25th; Catawissa, 25th.
South Carolina.—Spartanburg, 9th.
Washington Territory.—Walla Walla, 24th.

WINDS.

The most frequent directions of the wind during November, 1886, are shown on chart ii by the arrows flying with the wind; they are also given in the table of miscellaneous meteorological data. In the Lake region the prevailing direction of the wind was from the west; in the middle Atlantic states and Missouri Valley, from the northwest; in the south Atlantic states, from the west or northwest. In other portions of the country the winds were variable.

HIGH WINDS.

[*In miles per hour.*]

Wind-velocities of fifty or more miles per hour were recorded during the month, as follows:

Mount Washington, New Hampshire, 54, se., 26th; 70, nw., 7th; 80, nw., 8th; 75, nw., 9th; 70, e., 13th; 99, nw., 14th; 98, nw., 15th; 83, nw., 16th; 94, sw., 17th; 84, sw., 18th; 66, nw., 19th; 70, w., nw., 20th; 54, w., 22d; 94, sw., 23d; 88, nw., 24th; 81, w., 26th.

Pike's Peak, Colorado, 62, nw., 4th; 60, nw., 5th; 56, w., 6th; 56, nw., 8th; 64, w., 9th; 52, ne., 17th; 60, ne., 18th; 79, w., 19th; 86, w., 20th; 68, w., 21st; 76, w., 23d.

Bismarck, Dakota, 53, nw., 4th.

Fort Totten, Dakota, 64, nw., 4th.

Cape Henry, Virginia, 60, w., 6th.

Sandy Hook, New Jersey, 52, nw., 7th; 54, e., nw., 13th; 60, ne., 25th; 50, w., 26th.

Fort Elliott, Texas, 50, nw., 16th.

Marquette, Michigan, 53, e., 17th.

Mackinaw City, Michigan, 53, e., 17th.
 Block Island, Rhode Island, 52, sw., 18th.
 Buffalo, New York, 58, sw., 18th.
 Grand Haven, Michigan, 52, sw., 18th.
 Fort Maginnis, Montana, 52, nw., 27th.

LOCAL STORMS AND TORNADOES.

Chincoteague, Virginia: on the afternoon of the 6th a severe thunder-storm passed over this station, coming from the west. Rain began at 6.30 p. m.; total precipitation during the storm 1.02 inches. Hail began at 9.30 p. m. and continued until 9.50 p. m. At 9.27 p. m. the wind suddenly shifted to the west and blew at the rate of forty-five miles per hour.

Cape Henry, Virginia: a heavy thunder-storm from the northwest, accompanied by intense lightning and heavy rain, passed over this place between 9 and 11 p. m. of the 6th. During the storm a gale prevailed, the wind attaining at 9.45 p. m. a velocity of sixty miles per hour.

Bangor, Maine: a very heavy thunder-storm occurred here on the night of the 6-7th, the rainfall was large and the wind high, the electrical part of the storm was unusually intense for the season of the year. One dwelling was struck by lightning and slightly damaged, as well as several barns one of which was burned. The high wind also did considerable damage, blowing down fences, trees, and in the agricultural fair grounds, several buildings.

Keeler, California: a destructive wind occurred at 9 p. m. of the 14th at Panamint, Inyo county, wrecking a nearly completed quartz mill owned by the Surprise Mining and Milling Company. During the 14th the wind had been blowing a moderate gale from the southwest, which had not abated at the time of the disaster. At 9 p. m. a "secondary" wind from east set in, producing a violent whirlwind lasting about ten minutes, which completely demolished the south end of the mill. The studding, rafters, floor timbers, etc., were reduced to splinters, and the roof of corrugated iron was broken into fragments. The whole south side of the building was raised into the air, and the ground to the southwest for a distance of over one fourth of a mile was strewn with fragments.

Chambersburg, Franklin county, Pennsylvania: on the morning of the 17th a heavy rain storm set in and continued throughout the day; after sunset the wind began blowing a gale and continued to increase in force until 7 a. m. of the 18th, when it moved with the velocity of a high gale, blowing down chimneys, shutters, and houses. The greatest damage was done in the surrounding country, where numerous dwellings, school-houses, and barns were demolished and trees and fences blown down. In some parts of the county this storm exhibited, in the black whirling clouds which accompanied it and the direction in which the débris was scattered, the characteristics of a tornado.

Mobile, Alabama: at 10.50 a. m. of the 17th a thunder-storm, with light rain and high wind from the southeast, set in. At 1.45 p. m. the wind changed almost instantly from southeast to west, and blew for five minutes at the rate of fifty miles per hour, accompanied by unusually heavy thunder, lightning, and rain. Many branches of trees were broken off, and numerous out-houses, sheds, and fences were blown down, but no serious damage occurred. From 3 to 11 p. m. the barometer rose rapidly.

Wilkesbarre, Luzerne county, Pennsylvania: between 8 and 9 a. m. of the 18th a very high wind, which exhibited some of the characteristics of a tornado, passed over this county. Many substantial buildings were moved from their foundations and numerous light structures were completely destroyed. At Parsons, a small mining town three miles north of Wilkesbarre, two churches were damaged and several coal breakers partially destroyed, entailing a loss of \$10,000. The high school building in the town of Miner's Mill was badly wrecked, and in Kingston a church in course of construction was totally destroyed. Throughout the surrounding country farmers suffered severe loss, their barns and fences being blown down and orchards destroyed.

Table of miscellaneous meteorological data for November, 1886—Signal Service observations.

Stations.	Atmospheric pressure (in inches and hundredths).										Temperature of the air (in degrees Fahrenheit).										Winds.								
	Elevation above sea-level.		Mean actual barometer.		Extremes.		Monthly range of barometer.		Monthly mean.		Extremes.		Daily range.		Mean rel. humidity.		Mean dew-point.		Departure from normal.		Total movement.		Maximum velocity.						
	Date.	Highest barometer.	Date.	Lowest barometer.	Date.	Max.	Date.	Min.	Date.	Max.	Date.	Mean max.	Date.	Greatest.	Date.	Least.	Date.	Miles p.h.	Direction.	Date.	No. of rainy days.	No. of cloudy days.	No. of fair days.	No. of clear days.					
New England.																													
Eastport.	61	29.81	-13	29.92	30.40	16	29.14	7.1.25	38.7 + 0.6	58.7	1	45.4	21.4.27	32.1 37.3 25.3	7	3.8 13.7 7.2	31.3	5.3 + 1.6	6,171	sw.	44	8.	7.13	13.10	7				
Portland.	99	29.81	-13	29.80	30.51	16	28.90	7.1.55	19.3 - 2.5	66.1 18	50.9	1	45.3	18.2.20	11.9 47.1 35.5	7	4.2 15.9 5.0	18.0	6.48 + 0.15	*	nw.	14	9.	3.16	11	11			
Mount Washington.	6,279	23.48	-	29.80	30.51	16	28.90	7.1.55	42.8 + 3.2	66.1 18	50.9	1	45.3	20.0.28	35.5 42.1 29.2	18	5.6 25.7 1.4	33.4	3.59 + 1.51	8,594	w.	44	ne.	13.12	7.13	10			
Boston.	125	29.81	-13	29.94	30.43	16	29.29	7.1.14	46.6 + 1.4	63.5 18	52.7	1	45.3	20.2.27	40.2 31.0 24.9	25.3	3.7 18.1.6	41.0	5.16 + 0.72	†	sw.	52	sw.	18	8.	8.15	7		
Block Island.	27	29.56	-	29.98	30.46	16	29.38	13.1.08	44.2 +	63.5 18	52.7	1	45.3	20.2.27	35.0 40.0	40.0	4.02 + 0.55	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	
Narragansett Pier.																													
New Haven.	107	29.87	-	29.98	30.42	16	29.43	13.1.00	42.7 + 1.9	70.2	2	52.1	21.0.28	33.8 46.2 32.4	7	3.0 25.7 0.7	33.0	3.83 + 0.13	5,614	w.	32	w.	18	8.14	8				
New London.	47	29.92	-14	29.99	30.44	16	29.40	13.1.01	44.4 + 3.2	66.3 2	52.9	1	45.3	20.2.27	35.8 39.8 26.7	17	3.5 12.7 0.4	30.1	4.57 + 0.35	6,625	bw.	48	sw.	16	11.	9.11	10		
Nantucket.	13	29.98	-	30.40	30.46	16	29.30	13.1.10	46.6 +	63.8 18	53.4	1	45.3	20.2.27	32.9 14	39.4 30.1 27.2	17	5.9 12.7 4.4	38.4	2.25 + 0.55	8,290	bw.	31	sw.	14	11.	9.11	10	
Edgartown.									49.9 +	68.4 4	53.8	1	45.3	20.2.27	47.0 40.3 28.0	29	3.4 22	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	
Mid. Atlantic States.																													
Albany.	85	29.90	-12	29.99	30.47	16	29.33	23.1.14	39.7 + 0.6	69.5	3	48.9	18.8.28	32.2 50.7 27.1	23	6.0 25.7 1.8	30.8	5.40 + 0.15	5,279	s.	32	se.	18	14.	11.15	4			
New York City.	168	29.84	-11	30.01	30.43	16	29.48	23.0.95	45.3 - 2.5	72.7	2	54.8	28.6 8	38.8 44.1 23.4	18	5.6 25.6 68.9	35.1	4.61 + 1.15	7,046	bw.	40	sw.	18	9.	8.10	12			
Philadelphia.	117	29.81	-10	30.03	30.47	16	29.50	23.0.98	40.5 + 3.1	72.7	2	54.9	26.6.29	38.6 45.8 26.6	5	8.7 10.6 1.3	32.8	3.91 + 0.70	7,332	bw.	40	sw.	18	10.	8.8	14			
Atlantic City.	13	30.01	-11	30.01	30.44	16	29.48	23.0.96	46.7 + 2.2	65.0	2	55.0	24.4.27	38.5 40.6 21.8	5	8.5 11.7 2.8	39.8	3.15 + 0.27	5,960	w.	42	sw.	18	9.	6.15	15			
Sandy Hook.	28	29.99	-	30.30	30.45	16	29.46	13.1.00	46.5 + 1.7	68.9	2	53.2	20.9.27	40.1 39.9 24.8	18	5.8 25.7 3.0	37.9	5.88 + 1.74	14,039	w.	60	ne.	25	11.	9.11	10			
Cape Henlopen.									51.7 +	74.0.24	58.7	1	45.3	20.2.27	35.6 50.4 38.4	20.1	7.3 10.0	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	
Baltimore.	45	30.00	-11	30.03	30.46	16	29.49	12.0.97	40.4 + 1.2	73.2	2	55.6	20.0.27	38.4 47.2 27.2	9	6.8 30.6 1.9	32.7	4.09 + 0.98	4,708	bw.	28	sw.	25	10.	8.12	10			
Ocean City.																													
Washington City.	106	29.95	-10	30.05	30.47	16	29.50	18.0.97	46.1 + 2.0	73.1	2	55.8	22.2.27	36.5 50.9 39.7	5	8.7 22.6 6.3	32.9	2.88 + 0.03	4,502	bw.	29	sw.	13	9.	8.11	11			
Cape Henry.	16	30.00	-08	30.05	30.43	16	29.50	19.0.93	52.7 + 1.0	75.2	23	60.4	31.6 4.4	47.4 43.6 29.4	25	4.9 21.6 6.9	41.3	2.76 + 0.70	7,332	bw.	60	w.	6	9.	6.0	15			
Chincoteague.	8	30.05	-07	30.05	30.44	16	29.49	19.0.95	50.0 + 2.0	66.2	2	56.2	30.0.26	42.2 36.2 27.5	25	6.8 21.6 0.9	39.5	3.05 + 0.08	8,708	s.	45	sw.	13	10.	8.8	14			
Lynchburg.	652	29.38	-07	30.08	30.47	16	29.61	18.0.87	45.9 + 0.1	73.3	3	57.6	24.1 9	36.8 49.9 34.2	4	3.5 12.7 1.1	35.3	4.49 + 1.88	2,596	sw.	40	sw.	18	7.	6.15	15			
Norfolk.	30	30.00	-06	30.07	30.42	16	29.49	25.0.93	51.2 + 1.2	74.0	25	61.1	29.7 14	42.6 45.1 33.0	25	7.8 22.6 8.2	39.8	1.94 + 1.52	5,323	w.	34	sw.	18	9.	6.14	10			
South Atlantic States.																													
Charlotte.	808	29.26	-04	30.09	30.40	16	29.66	25.0.74	50.5 + 0.9	74.0	1	61.9	27.5 14	39.1 46.5 35.7	1	9.2 22.7 2.2	40.7	2.68 + 1.18	2,814	sw.	35	sw.	18	11.	7.12	11			
Fort Macon.	11	30.12	-00	30.10	30.35	16	29.70	25.0.65	55.2 - 0.1	78.9	18	62.2	31.0 14	45.0 47.9 30.1	13	3.0 30.7 2.3	45.8	1.17 + 1.79	5,599	bw.	40	sw.	6	4.	2.13	15			
Hatters.	12	30.15	-01	30.10	30.38	16	29.73	25.0.68	55.9 + 0.0	74.6	25	62.8	35.5 14	48.6 39.1 30.9	13	5.4 21.7 4.2	47.1	1.57 + 4.50	7,611	bw.	40	sw.	7	8.	5.12	13			
Kitty Hawk.	9	30.10	-05	30.09	30.41	16	29.61	25.0.80	54.0 + 1.0	70.9	24	57.9	32.3 14	46.3 45.2 30.2	13	0.3 4.70.8	43.9	1.39 + 1.88	9,884	w.	44	sw.	7	8.	5.12	13			
New River Inlet.									59.5 +	70.1	4	63.1	30.1 27	31.0 27	1.1	4.5 9.6 0.6	0.82	0.82 + 0.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
Smithville.	34	-	-	-	-	-	-	-	54.1 - 0.7	75.6	4	64.5	27.0 27	43.7 48.6 36.8	30	7.10.30	0.70	0.70 + 2.38	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
Wash. Woods.									56.0 +	70.0	24	65.1	30.0 14	47.0 46.1	1.1	4.0 12.7 0.1	2.07	2.07 + 1.38	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
Wilmington.	52	30.05	-04	30.10	30.36	16	29.75	30.0.61	55.3 + 1.0	77.4	2	67.7	29.7 14	43.5 47.7 33.6	2	15.0 22.6 6.0	42.5	0.19 + 2.56	4,626	sw.	34	sw.	25	4.	3.12	15			
Charleston.	52	30.10	+01	30.12	30.30	16	29.82	30.0.54	57.1 + 0.2	78.0	6	66.7	34.9 14	48.5 51.3 42.6	2	16.0 22.6 2.0	40.0	0.33 + 2.94	4,899	sw.	25	sw.	12	10.	5.14	13			
Augusta.	183	29.97	-02	30.10	30.34	16	29.72	25.0.68	51.9 - 0.8	78.8	5	67.8	25.8 14	39.7 53.3 43.5	2	14.4 24.8 4.2	46.0	1.29 + 2.64	2,395	w.	20	sw.	12	5.	3.12	13			
Savannah.	87	30.05	+01	30.14	30.39	16	29.83	25.0.56	58.0 + 0.2	78.0	24	69.2	35.0 14	48.5 54.3 28.4	15	3.0 11.0 6.9	47.2	0.51 + 1.90	4,365	kw.	28	sw.	7	5.	3.13	14			
Jacksonville.	43	30.13	+01	30.14	30.36	16	29.70	27.0.78	59.1 + 2.5	81.1	22	65.9	35.4 18	45.0 53.3 33.2	17	3.7 11.0 7.3	44.3	4.34 + 1.26	4,815	k.	24	sw.	17	11.	9.11	11			
Florida Peninsula.																													
Cedar Keys.	22	30.18	+08	30.16	30.39	19	29.91	25.0.44	60.0 - 3.2	80.7	5	71.9	37.0 26	51.9 43.7 29.7	18	8.2 24.7 2.5	50.3	0.58 + 0.93	5,496	n.	34	s.	18	2.	2.12	16			
Key West.	20	30.11	+07	30.12	30.30	16	29.95	24.0.26	63.2 - 1.3	73.2	2	71.9	20.9 18	70.0 25.7 19.9	18	4.5 7.5 1.8	64.8	0.13 + 2.25	9,591	n.	20	sw.	12	11.	3.18	15			
Sanford.	25	30.12	+03	30.11	30.32	19	29.92	24.0.39	63.9 - 1.7	82.2	24	73.8	42.4 30	54.7 39.8 29.7	20	11.5 17.7 1.7	53.6	0.79 + 0.09	4,748	n.	23	n.	17	10.	2.15	15			
Eastern Gulf States.																													
Shreveport.	227	29.90	-02	30.11	30.37	16	29.66	16.0.91	54.6 + 0.2	79.4	5	66.0	26.6 18	44.9 52.3 30.0	1	7.5 21 7.2	45.0	3.60 + 1.27	4,294	s.	24	sw.	23	10.	7.13	10			
Fort Smith.	470	29.53	-05	30.04	30.54	16	29.54	22.0.97	47.4 - 3.8	75.0	1	59.5	22.1 18	37.0 52.9 40.8	28	7.9 8.7 2.6	37.4	2.66 + 1.33	3,537	e.	30	sw.	16	9.	8.12	10			
Little Rock.	288	29.79	-05	30.07	30.54	16	29.58	23.0.96	49.0 - 2.6	72.7	3	59.2	25.0 18	34.9 47.3 33.9	1	10.0 16.7 4.1	40.1	5.81 + 1.23	2,692	s.	24	sw.	16	13.	6.12	12			
Galveston.	40	30.13	+04	30.13	30.55	16	29.73	10.0.82	62.0 + 0.1	7																			

Table of miscellaneous meteorological data for November, 1886—Signal Service observations—Continued.

Stations.	Elevation above sea-level.	Atmospheric pressure (in inches and hundredths).				Temperature of the air (in degrees Fahrenheit).												Winds.															
		Mean actual barometer.	Departure from normal.	Mean reduced barometer.	Extremes.	Highest barometer	Date.	Lowest barometer	Date.	Monthly range of barometer.	Monthly mean.	Departure from normal.	Extremes.	Mean max.	Max.	Min.	Monthly range.	Greatest.	Date.	Mean min.	Mean rel. humidity.	Precipitation.	Total movement.	Departure from normal.	Maximum velocity.	Miles p. h.	Direction.	Date.	No. of rainy days.	No. of cloudy days.	No. of fair days.	No. of clear days.	
Upper Miss. Valley.																																	
Saint Paul.....	831	29.06	-.06	29.99	30.48	15. 29.17	23 1.31	27.9	3.2	73.6	1	36.8	-3.3	29	19.4	76.9	35.3	8	6.5	25	69.3	17.9	+ 0.75	6,105	w.	35	w.	5 11	8	17	8		
La Crosse.....	725	29.22	-.03	30.02	30.50	15. 29.23	17 1.27	33.1	0.7	67.8	1	41.4	0.7	30	26.6	61.1	29.9	23	4.0	16	73.2	25.2	+ 1.32	5,994	s.	30	s.	2 8	8	14	8		
Davenport.....	615																																
Des Moines.....	849	29.10	-.08	30.01	30.47	15. 29.28	17 1.19	35.8	-1.7	68.5	1	45.4	9.6	25	27.7	58.9	30.0	4	6.8	97.3	27.4	+ 1.86	5,064	n.	26	w.	22	9	8	13			
Dubuque.....	665	29.28		30.01	30.45	15. 29.25	17 1.19	33.2	-2.2	69.4	1	42.1	11.3	20	25.4	58.2	29.3	4	3.4	97.2	24.3	+ 1.89	4,133	w.	24	sw.	4 7	5	16	9			
Keokuk.....	618	29.36	-.06	30.03	30.45	15. 29.10	22 1.04	38.5	-0.2	69.4	1	47.6	15.2	25	31.4	54.4	28.7	23	8.4	12	71.0	29.2	+ 1.15	7,369	ww.	30	sw.	2 9	7	13	10		
Cairo.....	359	29.71	-.07	30.08	30.51	27 29.55	23 0.94	45.3	0.9	74.2	22	53.8	24.6	25	37.1	49.6	32.5	1	4.0	30	65.3	32.6	+ 5.73	5,731	+ 1.79	6,341	s.	32	w.	17	13	9	11
Springfield.....	644	29.36	-.08	30.05	30.46	29 29.49	22 0.97	42.4	0.0	72.9	2	52.3	20	3.26	33.9	52.6	29.6	23	9.0	25	66.2	31.4	+ 1.74	7,344	w.	34	w.	18	7	9	13		
Saint Louis.....	571	29.44	-.09	30.04	30.47	26 29.51	21 0.97	45.6	+ 2.5	75.1	1	54.5	23.2	25	37.8	51.9	29.0	23	8.8	11	61.4	31.8	+ 0.73	8,772	w.	43	ww.	18	13	11	8		
Missouri Valley.																																	
Lamar.....	1,028																																
Leavenworth.....	842	29.16	-.07	30.05	30.49	26 29.44	22 1.05	44.0	+ 3.8	77.0	1	51.6	15.0	25	30.9	62.0	32.2	19	7.5	16	65.1	28.4	+ 1.10	1,34	5,817	n.	27	w.	4	5	14	12	
Omaha.....	1,113	28.83	-.07	30.05	30.50	26 29.42	22 1.08	34.2	-1.9	73.1	1	45.5	9.1	25	25.9	64.0	30.4	22	9.0	15	67.4	23.0	+ 1.54	+ 0.22	7,210	s.	37	nw.	17	6	12	11	
Valentine.....	2,604	27.30		30.08	30.51	14 29.38	22 1.14	29.9		59.0	4	40.2	-3.0	18	20.1	62.0	36.5	18	6.7	17	70.5	20.5	+ 0.56	10,500	nw.	55	nw.	23	8	8	12		
Huron.....	1,307	28.61	-.02	30.06	30.54	14 29.05	22 1.49	27.0	-3.3	60.7	8	38.9	-5.0	30	16.3	65.5	41.2	13	5.2	16	64.4	15.3	+ 1.18	7,025	nw.	42	nw.	22	9	8	12		
Tankton.....	1,234	28.68	-.08	30.03	30.49	11 29.21	22 1.28	30.7	-1.6	70.4	1	41.0	0.0	25	20.7	70.4	37.2	13	5.5	17	69.7	21.1	+ 2.44	+ 1.91	7,155	nw.	37	n.	17	9	6	13	
Northern slope.																																	
Fort Assiniboine.....	2,720	27.21	+.06	30.12	30.79	15 29.64	3 1.14	29.7	-0.8	61.8	7	40.9	-26.8	23	15.3	88.0	53.6	23	8.7	28	59.6	16.9	+ 0.74	- 0.21	10,310	sw.	49	sw.	27	4	5	16	
Fort Benton.....	2,661																																
Fort Custer?	3,040	26.89	+.04	30.13	30.66	16 29.05	29 1.02	31.0	-1.6	62.0	2	43.0	-10	22	20.1	72	2.39	4	6	4.7	22	73.9	22.2	+ 0.36	- 0.10	5,319	se.	41	nw.	2	8	8	12
Fort Maginnis.....	4,340	25.55		30.05	30.65	15 29.00	8 1.05	30.0	-4.9	63.0	7	41.9	-14	22	21.8	77	0.43	9.7	10.5	18.9	15.7	+ 1.05	11,530	nw.	52	nw.	27	11	8	15			
Fort Shaw.....	3,550																																
Helena.....	4,069	25.89	+.03	30.15	30.70	15 29.59	20 1.11	29	-4	1.8	38.8	3	38.5	-8	22	20.2	67	6.38	23	9.0	168.9	20.1	+ 0.49	- 0.10	5,273	sw.	44	sw.	27	8	9	13	
Poplar River.....	2,030	27.89		30.09	30.66	15 29.55	3 1.11	23.3	-3.3	3.1	59.0	7	38.4	-19	12	10.1	78	1.46	7.2	9.7	29	69.6	13.0	+ 0.69	+ 0.37	5,615	w.	46	n.	4	7	6	13
Deadwood.....	4,600	25.35	+.03	30.14	30.58	16 29.60	22 0.98	29.3	-3.9	53.2	8	37.8	-4.8	17	21.4	58.0	34.6	18	4.0	24	73.7	21.7	+ 2.42	3,822	sw.	14	sw.	21	13	6	12		
Cheyenne.....	6,105																																
North Platte.....	2,841	27.09	-.03	30.10	30.57	5 29.37	22 1.20	31.9	-2.9	66.7	1	42.6	-5.0	18	22.2	71	7.35	0.18	9.7	30	76.7	24.7	+ 0.43	- 0.01	6,907	w.	40	n.	16	4	2	12	
Fort Laramie.....																																	
Middle slope.																																	
Denver.....	5,294	24.72	-.03	30.07	30.51	26 29.45	21 1.06	33.2	-4.7	63.0	4	45.5	-6.0	17	20.4	69.0	39.8	12	16.2	9.0	91.3	19.1	+ 1.93	+ 1.24	6,683	s.	38	w.	30	6	4	11	
Pike's Peak.....	14,134	17.00		30.13	30.66	26 29.36	22 1.40	7.1	-3.9	76.9	7	43.5	2.9	20	2.3	50.9	38.3	2.17	4.3	19	77.0	0.6	1.07	+ 0.79	21,085	n.	80	20	10	1	9	20	
Las Animas.....	3,899	26.06	+.03	30.09	30.56	26 29.42	22 1.14	32.3	-5.9	75.2	4	51.7	-6.0	25	17.2	81	2.51	9.1	4.2	12.5	15.7	23.6	0.23	+ 0.08	4,956	w.	42	w.	1	3	2	7	
Concordia.....	1,384	28.57		30.05	30.53	26 29.42	22 1.12	37.3	-1.1	71.2	1	49.7	2.5	17	25.7	68	7.38	2	7.9	11	59.5	23.7	+ 1.29	6,640	nw.	36	n.	17	5	5	14		
Dodge City.....	2,543	27.43	-.02	30.11	30.60	26 29.50	22 1.10	38.1	-1.2	73.0	1	54.2	7.3	12	34.2	65.5	24.4	12.5	15.3	19	65.3	25.7	+ 0.24	+ 0.39	6,062	no.	44	nw.	16	3	3	20	
Fort Reno.....																																	
Fort Supply.....	2,650	27.29	-.08	30.02	30.48	26 29.51	21 0.97	42.8	+ 0.7	73.5	1	57.6	10.3	17	31	3.63	24.2	23	19.6	11.6	62.5	29.2	+ 0.18	- 0.47	7,762	dw.	50	dw.	16	2	1	11	
Fort Elliott.....																																	
Southern slope.																																	
Fort Sill.....	1,200	28.86	-.02	30.11	30.62	26 29.57	22 1.05	48.2	+ 0.3	76.9	21</td																						

Girard, Crawford county, Kansas: a tornado occurred at 8.40 a. m. of the 22d, destroying all the lighter buildings in its track, and injuring a number of persons. The path of the storm was only from fifty to seventy-five feet in width. Outside of Girard the damage was slight.

Mount Sterling, Montgomery county, Kentucky: a tornado, one hundred yards wide, passed through Bath county on the morning of the 26th, uprooting large trees, blowing down fences, and destroying light houses.

NAVIGATION.

STAGE OF WATER IN RIVERS.

In the following table are shown the danger-points at the various river stations; the highest and lowest depths for November, 1886, with the dates of occurrence, and the monthly ranges:

Heights of rivers above low-water mark, November, 1886.

[Expressed in feet and tenths.]

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Date.	Height.	Date.	Height.	
<i>Red River:</i>						
Shreveport, Louisiana.....	29.9	30	10.4	14, 15	6.4	4.0
<i>Arkansas River:</i>						
Fort Smith, Arkansas.....	22.0	25	2.4	15, 16, 18 to [21, 30]	1.1	1.3
Little Rock, Arkansas.....	23.0	25	8.0	3, 8	1.2	6.8
<i>Missouri River:</i>						
Yankton, Dakota.....	24.0	1, 2, 3	15.3	7	15.0	0.3
Omaha, Nebraska.....	18.0	1, 2, 3	6.2	26 to 29	4.9	1.3
Leavenworth, Kansas.....	20.0	20, 21	5.3	28	2.2	3.1
<i>Mississippi River:</i>						
Saint Paul, Minnesota.....	14.5	22	2.8	14	2.4	0.4
La Crosse, Wisconsin.....	24.0	1 to 5	4.6	26, 27	2.5	2.1
Dubuque, Iowa.....	16.0	1	5.2	30	1.9	3.3
Keokuk, Iowa.....	14.0	1	4.0	30	0.6	3.4
Saint Louis, Missouri.....	32.0	12	7.6	30	4.1	3.5
Cairo, Illinois.....	40.0	30	23.9	11, 12	3.8	20.1
Memphis, Tennessee.....	34.0	30	16.0	15, 16	3.4	12.6
Vicksburg, Mississippi.....	41.0	30	8.5	16, 19	0.0	8.5
New Orleans, Louisiana.....	13.0	17	2.8	27	1.0	1.8
<i>Ohio River:</i>						
Pittsburg, Pennsylvania.....	22.0	26	13.0	17	3.9	9.1
Cincinnati, Ohio.....	50.0	29	30.2	2	3.0	27.2
Louisville, Kentucky.....	25.0	25	11.6	1 to 4	2.6	9.0
<i>Cumberland River:</i>						
Nashville, Tennessee.....	40.0	27	22.6	1	0.5	22.1
<i>Tennessee River:</i>						
Chattanooga, Tennessee.....	33.0	28	13.7	5 to 8, 11 to [14]	1.4	12.3
<i>Monongahela River:</i>						
Pittsburg, Pennsylvania.....	29.0	26	13.0	17	3.9	9.1
<i>Savannah River:</i>						
Augusta, Georgia.....	32.0	27	11.5	7	5.4	6.1
<i>Mobile River:</i>						
Mobile, Alabama.....	17	18.5	15	15.5	3.0	
<i>Sacramento River:</i>						
Sacramento, California.....	2 to 11, 23 [to 32]	8.0	1, 12 to 22	7.8	0.2	
<i>Willamette River:</i>						
Portland, Oregon.....	1, 30	2.0	6	-1.1	3.1	
<i>Colorado River:</i>						
Yuma, Arizona.....	3, 11, 25	15.4	1, 27 to 30	15.2	0.2	

Light ice passed down the Mississippi River at La Crosse, Wisconsin, from the 19th to 23d, from the 24th to 28th the flowing ice had become heavy, and on the 29th the river was frozen over and navigation closed. The "Mountain Belle," the last boat of the season at La Crosse, arrived and departed on the 21st. The steamer "Saint Paul" left Saint Paul, Minnesota, for Saint Louis, Missouri, on the 10th; this was the last departure of the season and, owing to the heavy ice in the river, navigation was practically closed on that date.

On the Red River of the North at Saint Vincent, Minnesota, the cold weather preceding the 24th had thickened the ice to such an extent as to cause a suspension of navigation and the ferry boat plying between this point and Pembina, Dakota, was obliged to lay up, thus closing navigation here for the season of 1886. By the 30th the ice on the river had become strong enough to allow heavily-loaded teams to cross.

The Tennessee River below Chattanooga became navigable about the 20th, after having been closed since the middle of July, when all boating was practically stopped by low water.

The following notes relate to the state of river navigation during the month:

Cairo, Illinois: the rise in the Ohio River which commenced on the 17th enabled all river craft to resume navigation about

the 24th. The Mississippi River between here and Saint Louis remains comparatively low.

Nashville, Tennessee: navigation was resumed on the Cumberland River on the 18th; the river had been unnavigable on account of low water since July 30th.

Louisville, Kentucky: navigation on the Ohio River was resumed at this point on the 19th, for several weeks prior to this date navigation had been discontinued by the larger class of boats.

Little Rock, Arkansas: on the 19th the Arkansas River began rising rapidly and several boats left port on that date; the river had been very low since October 11th.

Green Bay, Wisconsin: on the 24th Green Bay became frozen over and navigation at this port was closed for the winter.

Bismarck, Dakota: the Missouri River froze over at this point during the 16th and 17th and navigation was closed for the season.

Duluth, Wisconsin: navigation at this port closed for the season on the 30th; last departure for the lower lakes on the 28th; last arrival, the propeller "James Fisk, jr.," on the 30th.

FLOODS.

Buffalo, New York: during the heavy storm that prevailed during the 18th and 19th the wind blew steadily from the west, driving the water of the lake over the lower portion of city and damaging considerable property. Over two hundred feet of the track of the New York Central Railroad were undermined and washed away; the damage done was estimated at \$10,000. The sea-wall was damaged, and all houses along a canal which runs through a part of the city were filled with water to a depth of two feet. Considerable farm property along the lake shore was submerged.

Poughkeepsie, Dutchess county, New York: on the morning of the 18th over two inches of rain fell in three hours; this is the largest rainfall that has occurred within such a short time for several years. Streams were suddenly swollen and sewers choked, while the lower part of the town was flooded. The storm was accompanied by high southeasterly winds, blowing down telegraph poles and signs and interrupting communication.

Memphis, Tennessee: on the 24th a freshet in Wolfe River, the result of heavy rains during the previous week, carried away lumber and damaged other property to an extent of \$6,000.

ATMOSPHERIC ELECTRICITY.

AURORAS.

Mount Washington, New Hampshire: an auroral light was noticed in the north at 7.50 p. m. of the 2d; when first seen it was in the form of a white light with a slight, lateral, wavy motion from west to east. The aurora at its centre rested directly on the northern horizon and extended about 30° east and west of the north; altitude 50°. At 9.20 p. m. a few streamers were observed rising from the centre of the aurora and terminating near the zenith; streamers were seen at intervals of from three seconds to five minutes until 10.40 p. m. The display reached its maximum brilliancy between 9.20 and 10.40 p. m. and disappeared after midnight.

Fort Assinaboine, Montana: an auroral arch was visible from 11.33 to 11.57 p. m. of the 2d; it was of a pale straw color; altitude, 7°; azimuth, 50°; no streamers appeared. The display was obscured by clouds at 11.57 p. m. On the 3d a brilliant aurora was visible from 10.35 to 11.20 p. m. The observer states that in shape and color it resembled that seen on the previous night, and appeared to be a continuation of the same aurora, although the display of the 3d was accompanied by streamers of a bluish white tint extending almost to the zenith and having a motion resembling the blaze of a large fire when disturbed by the wind.

Duluth, Minnesota: on the 3d, at 10.15 p. m., a faint aurora in the form of a broad belt of light was visible in the northern horizon; azimuth, 160° to 240°; altitude, 10°; the display ended at 11.55 p. m.